

Work Order ID 74989

74989

Page 1

October-14-11 10:35:32 AM

Item ID: D350-636-012

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Skidtube RH

Stop *NS2*

Start Date: 14/10/2011 Start Qty: 1.00

1

Cust Item ID:

Required Date: 28/10/2011 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 11/10/14 Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D2750

F

D3492

C

100

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy blue file and type labels per PPP D350-636-012 CHG 006

Suliz/14

J. P. MLS 11-12-14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110	Skidtubes	0.00							
110									
Skidtubes	Memo	0.00							
Skidtubes	1- Pick D2600-3 Bent								
	2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside AFT end per dwg D2750								
	3- Drill pilot holes for blade fitting bolt holes using DT8983. Open to 0.500", deburr.								
	4- Locate DT8329 off of blade fitting bolt holes and drill pilot holes for blade fitting								
	5- Drill only two fwd step holes using DT9616. Ensure proper positioning.								
	6- Drill pilot holes as per Dwg D2750 sheet 4 (D2750-2 details). Drill using drill Jig DT8150 & DT8863A for first side only DT8863B for second side (detail K)								
	7- Clecko DT8863B on second side of tube and drill pilot holes for detail B. ***SECOND SIDE***								
	8-Open up holes for Detail B to 0.375" (4 holes per side) and blade fitting location holes to 0.500" (total of 4 holes per side) as per dwg D2750. Open up holes for ground handling and detail L to 0.500" (8 holes per side)								
	9-Drill pilot holes for wearplates as per Dwg D2750 using DT8108 open to 0.297".								
	10-Open up holes of Detail A to 0.297" (total of 2 holes per side)								

TW 11-11-25

B 11/12/04

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

11-Weld D2744 Cap as per Dwg D2750 and QSI 004. Fill grooves in bend left
from bending as per QSI 004

A/R Aluminum Rod batch: M118735

BE 11-12-04

12-Grind welds flush as per Dwg D2750

BE 11/12/05

120

QC10- Inspect visual per QSI004- ground welds

0.00

120

QC

Memo

0.00

Quality Control

130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Memo

0.00

Quality Control

S 11/12/05

S 11/12/05

76

W/O:		WORK ORDER CHANGES					
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Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Chemical Conversion Coat per QSI005 4.1	0.00							
140									
HandFinish	Memo	0.00							
Hand Finishing									
150	QC3- Inspect Part Finish	0.00							
150									
QC	Memo	0.00							
Quality Control									

SAD 11-12-05

11-12-5

W/O:		WORK ORDER CHANGES					
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Page 5

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Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Skidtubes	0.00							
160									
Skidtubes	Memo	0.00							
Skidtubes	1-Open up holes of Detail L and ground handling to 0.625" (total of 8 holes per side) as per dwg D2750.								
	2-Open up holes of Detail K to 0.750" (total of 4 holes per side) as per dwg D2750.								
	3-Open float holes to .500" (4 per Side)								
	4-Chamfer holes of Detail K, L, ground handling and float holes per dwg D2750 (welding instructions on sheet 9)								
	5-Deburr and blow out all chips from inside of tube								
	6-Prepare tube for welding, remove alodine as required.								
	7-Bond web D2739 in place as per OSI015 A/R Sikaflex-291 batch: <u>119299</u> exp. date: <u>12-08-13</u>								
	8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D2750 & QSI004 (welding instructions on sheet 9) A/R Aluminum Rod batch: <u>M 118735</u>								
	9- At section AP-AP drill out x-bolt spacer to 0.404"								
	10-Grind welds flush as per Dwg D2750								
	11-Spot face ground handling holes section (total of 4 places per side) as per								

SAD
11-12-05

7 BE11-2-07

11/12/08

W/O:		WORK ORDER CHANGES					
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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

dwg D2750

12-Deburr holes

HB 11/12/08

170

QC10- Inspect visual per QSI004- ground welds

0.00

170

QC

Memo

0.00

Quality Control

180

QC5- Inspect part completeness to step on W/O

0.00

180

QC

Memo

0.00

Quality Control

Smirlog

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Page 7

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Required Date: 28/10/2011 Req'd Qty: 1.00

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

190 Pressure Wash per QSI005 4.3

0.00

190

HandFinish

Memo

0.00

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

IX Ø M-11/12/10

200

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

200

Powdercoat

Powder Coating

Memo

0.00

START TIME: *9:30*

OVEN TEMPERATURE: *320°F*

FINISH TIME: *10:00*

IX Ø M-11/12/12

210

QC3- Inspect Part Finish

0.00

210

QC

Quality Control

Memo

0.00

Inspect for foreign object per QSI 024

1 11-12-13

M119480

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Run Start ***NR1***

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	HandFinishing	0.00							
230									
HandFinish	Memo	0.00							
Hand Finishing	1-Install inserts as per dwg D2750								
	2-Inspect for Foreign Objects								
	3-Spray inside of tube with "LPS-3" batch: <u>N/A</u>								
	4-Install blade fitting D3488-042, wearshoes and ground handling hardware as per dwg D2750 SIKA FLEX 241 BATCH: <u>119443</u> EXP DATE: <u>12/1</u>								
	5-assemble o'ring to plug as per dwg D3493 and apply o'ring lube A/R 55-o'ring lube batch: <u>110348</u>								
	6-Coat all exposed fasteners with "LPS Procyon" batch: <u>1145916</u>								

1 BL 11-12-13

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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N900040100

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Start Date: 14/10/2011 **Start Qty:** 1.00 ***1***

Required Date: 28/10/2011 **Req'd Qty:** 1.00 *** 1 ***

Reference:

Run Start *NR1*

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

240 QC5- Inspect part completeness to step on W/O

240

QC Memo

Quality Control

250	Pick Kit	0.00
-----	----------	------

250

Packaging Memo

Packaging

260	QC4- 100% Inspect kits for completeness	0.00
-----	---	------

260

QC Memo

Quality Control

W/O:		WORK ORDER CHANGES					
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Page 10

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Item Name: Skidtube RH

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Cust Item ID:

Required Date: 28/10/2011 Req'd Qty: 1.00

1

Customer:

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
270	Packaging								
Packaging	Memo	0.00							
Packaging	Package as per PPP D350-636-012								
280		0.00							
280	QC21- Final Inspection - Work Order Release								
QC	Memo	0.00							
Quality Control									

Rev
h272

11/12/14

11/12/15

11/12-14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Picklist Print

October-14-11 10:35:37 AM

Page 1

12

Work Order ID: 74989

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Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:102.09.25Rearranged procedure stepsKJ
 IPP Rev:J 06-03-29 As per Rev D EC
 IPP Rev:K 06-07-13 As per dsi9343 EC
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC
 IPP Rev:M 08-04-22 update steps 4,13 DD verified by:EC
 IPP Rev:N 08-09-23 revF as per dwg DD verified by:ec IPP Rev:O
 10.06.22 revise seq110 DD verf:EC IPP Rev:P 10.10.01 as
 per IIN revH DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
ALS4-1032-225		Purchased	No				Each	2,610.000		38			

AI S4-1032-225

Insert

**

BR 11-12-13

Location	Loc Qty	Loc Code
ST282	2610	
108696	758	
110768	62	
118386	860	
118966	930	

AN3C5A

Purchased

No

230

Each

1,316.000

34

34

AN3C5A

Bolt

**

BR 11-12-13

Location	Loc Qty	Loc Code
FP-A 119749	7	
115835	7	
ST350	1309	
116419	28	
117343	110	
117764	169	
117872	2	
118451	500	
119127	500	

34

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Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

AN3C6A

Purchased

No

230

Each

232.0000

4

4

AN3C6A

BOLT

**

BR 11-12-13

Location

Loc Qty

Loc Code

FP-A

119749

1

111982

1

ST351

231

111982

2

116419

23

116549

2

116704

12

117619

10

117688

1

117872

5

118422

176

4.

AN6C44A

Purchased

No

230

Each

113.0000

4

4

AN6C44A

BOLT

**

BR 11-12-13

Location

Loc Qty

Loc Code

FG

2

103964

2

ST344

111

118387

41

118985

40

119125

30

4.

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Page 3

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Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

AN8C35A

Purchased

No

230

Each

113.0000

1

1

AN8C35A

BOLT

**

BR 11-12-13.

Location

Loc Qty

Loc Code

FP

77

117511

11

118286

66

FP-A

1

115960

1

ST345

34

117834

34

ST346

1

114442

0

115188

0

115960

1

AN960C10L



NAS1149C0332

Purchased

No

230

Each

0.0000

38

38

AN960C10L

washer

D2745

Manufactured

No

230

Each

165.0000

8

8

D2745

Bushing

**

38.

BR 11-12-13.

**

BR 11-12-13.

Location

Loc Qty

Loc Code

FP-A

3

69529

3

ST023

162

71835

162

8.

W/O:		WORK ORDER CHANGES					
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D350-636-012

Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

D3488-042

Manufactured No

230

Each

18.0000

1

1

D3488-042

Blade Fitting Assembly, RH

**

BR 11-12-13

Location

Loc Qty

Loc Code

FP008

18

62003

1

69904

6

71883 ✓

11

D3492-1

Manufactured No

230

Each

158.0000

8

8

D3492-1

Plug

3492-04L

**

BR 11-12-13

Location

Loc Qty

Loc Code

FP

70185.

158

69531

8

73402

70

74444

80

D3492-3

Manufactured No

230

Each

117.0000

8

8

D3492-3

Plug

~~3492-0~~

**

BR 11-12-13

Location

Loc Qty

Loc Code

FP

~~76230.~~

117

71838

37

74447 ✓

80

D3535-25

Manufactured No

230

Each

15.0000

1

1

D3535-25

Wearshoe

**

BR 11-12-13

Location

Loc Qty

Loc Code

FP018

15

62233

1

73424

2

74592 ✓

12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October-14-11 10:35:37 AM

Work Order ID: 74989

74989

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

D3536-25	Manufactured	No	230	Each	19.0000	1	1	
D3536-25						**		BR 11-12-13.
Gasket								

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP012 75039.	19	1
74526	7	
74595	12	

D3537-1	Manufactured	No	230	Each	33.0000	3	3	
D3537-1						**		BR 11-12-13.
Wearpad								

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP001 74867.	26	3.
73395	26	
FP017	7	
69817	5	
70686	2	

D3631-1	Manufactured	No	230	Each	107.0000	8	8	
D3631-1						**		BR 11-12-13.
Washer								

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST072 75518.	107	8.
68062	107	

D3791-1	Manufactured	No	230	Each	14.0000	1	1	
D3791-1						**		BR 11-12-13.
Wearplate								

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP017	14	
62239	2	
74598	12	1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October-14-11 10:35:37 AM

Page 6

Work Order ID: 74989

74989

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

D3793-1 Manufactured No

230 Each 19.0000 1 1

D3793-1

Wearshoe

**

BR 11-12-13

Location

Loc Qty

Loc Code

FP001

6

73422

6

FP018

13

74591 ✓

13

D3793-3 Manufactured No

230 Each 11.0000 1 1

D3793-3

Wearshoe

**

BR 11-12-13

Location

Loc Qty

Loc Code

FP001

11

74593 ✓

11

D3794-1 Manufactured No

230 Each 24.0000 1 1

D3794-1

Gasket

**

BR 11-12-13

Location

Loc Qty

Loc Code

FP014

24

74529 ✓

12

74594 ✓

12

D3794-3 Manufactured No

230 Each 34.0000 1 1

D3794-3

Gasket

**

BR 11-12-13

Location

Loc Qty

Loc Code

FP002

34

73423 ✓

6

74530 ✓

14

74596

14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Page 7

October-14-11 10:35:37 AM

Work Order ID: 74989

74989

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

MS21043-6

Purchased

No

230

Each

505.0000

4

4

MS21043-6

NUT

**

BL 11-12-13

Location

Loc Qty

Loc Code

FG

20

103693

20

ST301

485

112314✓

275

117887

10

118384

200

4

MS21083C8

Purchased

No

230

Each

67.0000

1

1

MS21083C8

NUT

**

BL 11-12-13

Location

Loc Qty

Loc Code

FP-B

1

115884

1

ST293

6

118077

6

ST303

60

115884

0

118354

10

118614✓

50

1

NAS1149C0832R

Purchased

No

230

Each

345.0000

1

1

NAS1149C0832R

WASHER

**

BL 11-12-13

Location

Loc Qty

Loc Code

FP-B

17

114915✓

17

ST297

328

114915

328

1

October-14-11 10:35:37 AM

Shop Packet Print

Page 7

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October-14-11 10:35:37 AM

Work Order ID: 74989

74989

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

NAS1515H3L

Purchased

No

230

Each

117.0000

4

4

***NAS1515H3I ***

WASHER

**

BK 11-12-B

Location

Loc Qty

Loc Code

FG

119438.

40

4.

102472

40

ST277

77

113362

57

118686

20

NAS1611-010

Purchased

No

230

Each

95.0000

8

8

NAS1611-010

O-RING

**

BK 11-12-B

Location

Loc Qty

Loc Code

FP

119438.

81

8.

117460

8

118077

1

118612

72

FP-A

14

110915

14

NAS1611-013

Purchased

No

230

Each

92.0000

8

8

NAS1611-013

O-RING

**

BK 11-12-B

Location

Loc Qty

Loc Code

FP

119307.

55

8.

117291

2

117887

53

FP-A

37

116582

5

118384

32

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October-14-11 10:35:37 AM

Page 9

Work Order ID: 74989

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

74989

D350-636-012

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

AN8C21A

Purchased

No

250

Each

69.0000

2

**

AN8C21A

BOLT

Location

Loc Qty

Loc Code

ST345

69

118045

19

118758

50

D2741

Manufactured

No

250

Each

19.0000

1

**

D2741

Blade, 350 Skidtube

Location

Loc Qty

Loc Code

ST466

19

70667

19

D3493-1

Manufactured

No

250

Each

55.0000

2

**

D3493-1

Washer

Location

Loc Qty

Loc Code

ST062

55

70697

17

71846

38

D3532-1

Manufactured

No

250

Each

24.0000

2

**

D3532-1

Spacer

Location

Loc Qty

Loc Code

ST065

3

69895

3

ST068

21

73342

21

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October-14-11 10:35:37 AM

Page 10

Work Order ID: 74989

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

74989

D350-636-012

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

MS21083C8

Purchased

No

250

Each

67.0000

2

2

**

M119638

MS21083C8

NUT

Location

Loc Qty

Loc Code

FP-B

1

115884

1

ST293

6

118077

6

ST303

60

115884

0

118354

10

118614

50

NAS1149D0863J

Purchased

No

250

Each

130.0000

2

**

SD

NAS1149D0863J

WASHER

Location

Loc Qty

Loc Code

ST298

130

118078

130

D2600-3-BENT

Manufactured

No

110

Each

13.0000

1

1

**

① JW 11-11-25

D2600-3-BENT

Extrusion Bent

Location

Loc Qty

Loc Code

LG

13

66875

8

73253

5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October-14-11 10:35:37 AM

Page 11

Work Order ID: 74989

74989

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

D2744

Manufactured No

110

Each

66.0000

1

1

D2744

Cap

**

BE1142-04

Location

Loc Qty

Loc Code

LG002

13

62715

1

70881

12

WA

53

71861

53

D2739

Manufactured No

160

Each

2.0000

1

1

D2739

350 I Beam

**

BE1142-05

B 76 987

Location

Loc Qty

Loc Code

LG

2

72155

2

D2743

Manufactured No

160

Each

217.0000

8

8

D2743

Crossbolt Spacer

**

BE1142-07

B 76191

Location

Loc Qty

Loc Code

LG

159

71839

95

73403

64

LG001

58

67766

4

68251

54

D3490-3

Manufactured No

160

Each

46.0000

4

4

D3490-3

Cross Bolt Spacer

**

B 76234

Location

Loc Qty

Loc Code

LG

46

73295

46

October-14-11 10:35:37 AM

Shop Packet Print

Page 11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October-14-11 10:35:37 AM

Work Order ID: 74989

74989

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 14/10/2011

Required Date: 28/10/2011

Start Qty: 1.00

Required Qty: 1.00

D3490-1

Manufactured No

160

Each

54.0000

4

4

D3490-1

Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG

52

67773

5

69823

6

71841

41

LG001

2

62450

2

BE 11-12-07
8 74875 x 4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D2750-041	350 SKIDTUBE ASSEMBLY, LH
	X			D2750-042	350 SKIDTUBE ASSEMBLY, RH
		X		D2750-043	350 SKIDTUBE ASSEMBLY, LH
			X	D2750-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1				D2750-1	SKIDTUBE WELDMENT, LH
	1			D2750-2	SKIDTUBE WELDMENT, RH
		1		D2750-3	SKIDTUBE WELDMENT, LH
			1	D2750-4	SKIDTUBE WELDMENT, RH
1		1		D3488-041	BLADE FITTING, LH
	1		1	D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
1	1	1	1	D3535-25	WEARSHOE
1	1	1	1	D3536-25	GASKET
3	3	3	3	D3537-1	WEARPAD
8	8	8	8	D3631-1	WASHER
1	1	1	1	D3791-1	WEARPLATE
1	1	1	1	D3793-1	WEARSHOE
1	1	1	1	D3793-3	WEARSHOE
1	1	1	1	D3794-1	GASKET
1	1	1	1	D3794-3	GASKET
38	38	38	38	ALS4-1032-225	INSERT (OR ALS7-1032-225, AKS4-1032-225, AELS-1032-225)
34	34	34	34	AN3C5A	BOLT
4	4	4	4	AN3C6A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
38	38	38	38	AN960C10L	WASHER
1	1	1	1	AN960C816L	WASHER
4	4	4	4	MS21043-6	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 74989 M.L.J
11/10/14

RELEASED
6-27-22

GENERAL NOTES:

- MATERIAL: MAKE D2750-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- FINISH:
ACID ETCH, ALONDE ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- BREAK SHARP EDGES: N/A
- IDENTIFICATION: N/A
- WEIGHT: D2750-041/-042/-043/-044 = 26.5 LBS
- WELD PER DART QSI 004
- INSTALL ALS4-1032-225 INSERTS AFTER FINISH AS INDICATED. DRILL 'F' SIZE HOLES ($\phi 0.297$) FOR WEARSHOE INSERTS
- FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
MINIMUM YIELD TENSILE STRENGTH = 35 KSI
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.
COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF
POWDER COATING WITH MEK DEGREASER.
- SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

F	INCORPORATE DSI 9413; QTY (3) D3537-1 WAS QTY (5) (ZN C8-1); D3791-1/3 REPLACES D3535-13/35 (ZN C8-1); D3794-1/3 REPLACES D3536-13/35 (ZN B8-1); ADD D3791-1 (ZN C8-1); WEARSHOE HOLES UNDER FWD/ART SADDLE REMOVED (8 PL). WEARSHOE HARDWARE QTY UPDATED (ZN B8-1); D3488-041/-042 HARDWARE UPDATED (ZN C1-8, 9, 10, 11); ADD NOTE 12 AND 13 (ZN A6-1); REASON: REF. NCR 08-043	PH	08.07.16
E	CHANGE TO STAINLESS STEEL WEARPLATES; ADD RUBBER GASKETS; CHANGE INSERTS; ADD D3631-1; REMOVE QTY (38) NAS1515H3L; REMOVE QTY (10) NAS1515H8L; REMOVE D2741, QTY (2) AN960C816; REMOVE QTY (2) MS21083C8	CB	07.05.17
D	ADD HOLES AND SPACERS FOR APICAL FLOATS; INCORPORATE DEO 9133/9157	PH	06.01.05
C	ADD D2750-3/D2750-4; INCORPORATE D2738 AND D2740	CP	98.11.18
B	CHANGE MS24694-S293 TO AN8-16A	CP	98.09.01
A	NEW ISSUE	DS	98.04.16
REV.	DESCRIPTION	BY	DATE
DESIGN	PA	DART AEROSPACE USA, INC.	
DRAWN	RA	PORT HADLOCK, WA	
CHECKED	AP	DRAWING NO.	REV. F
MFG. APPR.	AP	D2750	SHEET 1 OF 11
APPROVED	AP	TITLE	SCALE
DE APPR.	AP	350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	COPYRIGHT © 1998 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

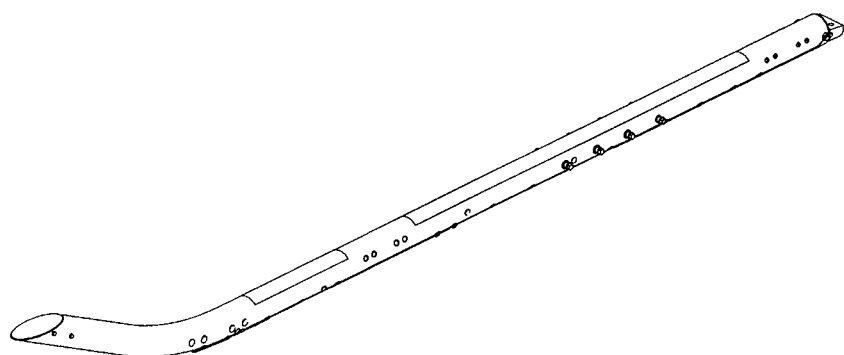
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

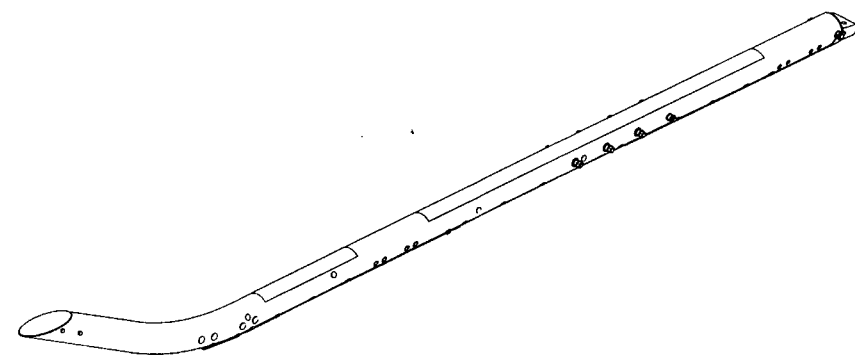
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

74989



D2750-041 350 SKIDTUBE ASSEMBLY, LH



D2750-042 350 SKIDTUBE ASSEMBLY, RH

RELEASED
08-09-22-11

DESIGN	PC	DART AEROSPACE USA, INC.	
DRAWN	RM	PORT HADLOCK, WA	
CHECKED	SA	DRAWING NO.	REV. F
MFG. APPR.	SA	D2750	SHEET 2 OF 11
APPROVED	SA	TITLE	SCALE
DE APPR.	SA	350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	<small>COPYRIGHT © 1998 BY DART AEROSPACE USA, INC.</small> <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

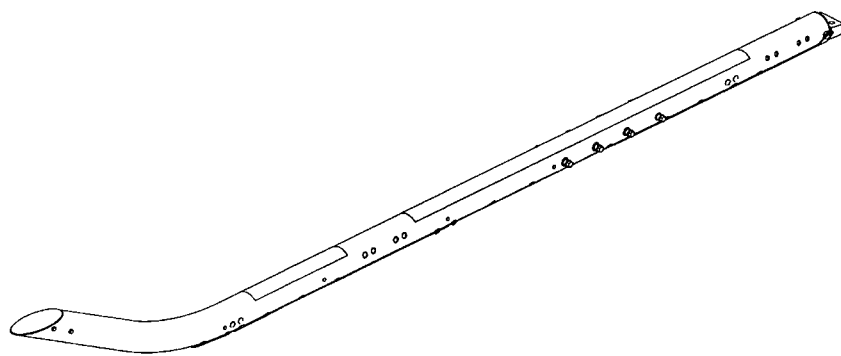
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

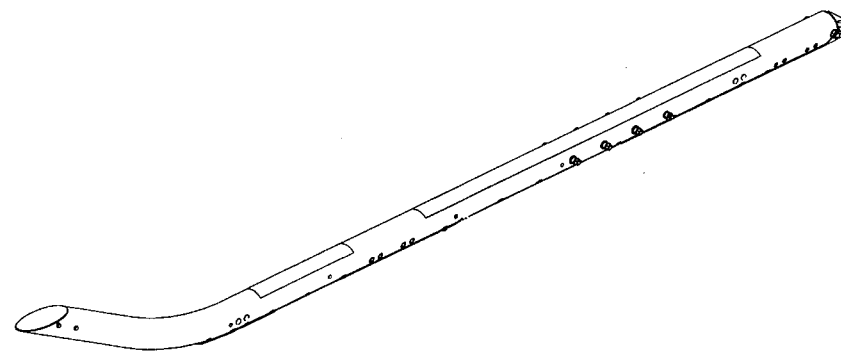
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

74989



D2750-043 350 SKIDTUBE ASSEMBLY, LH



D2750-044 350 SKIDTUBE ASSEMBLY, RH

RELEASED
08-09-22 1.11

DESIGN	PD	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
DRAWN	PD		
CHECKED	NA	DRAWING NO.	REV. F
MFG. APPR.	NA	D2750	SHEET 3 OF 11
APPROVED	NA	TITLE	SCALE
DE APPR.	NA	350 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

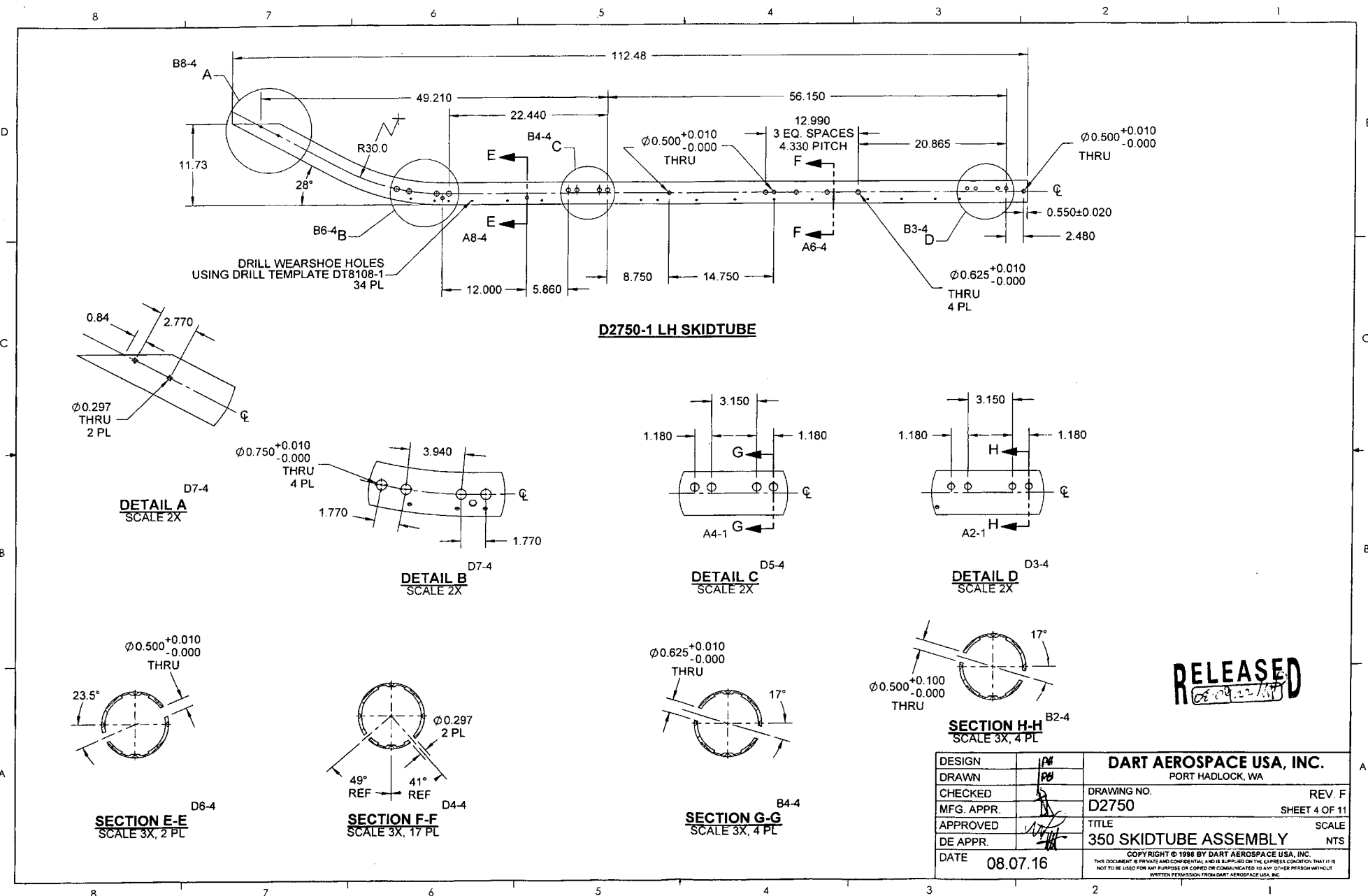
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

749 89



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

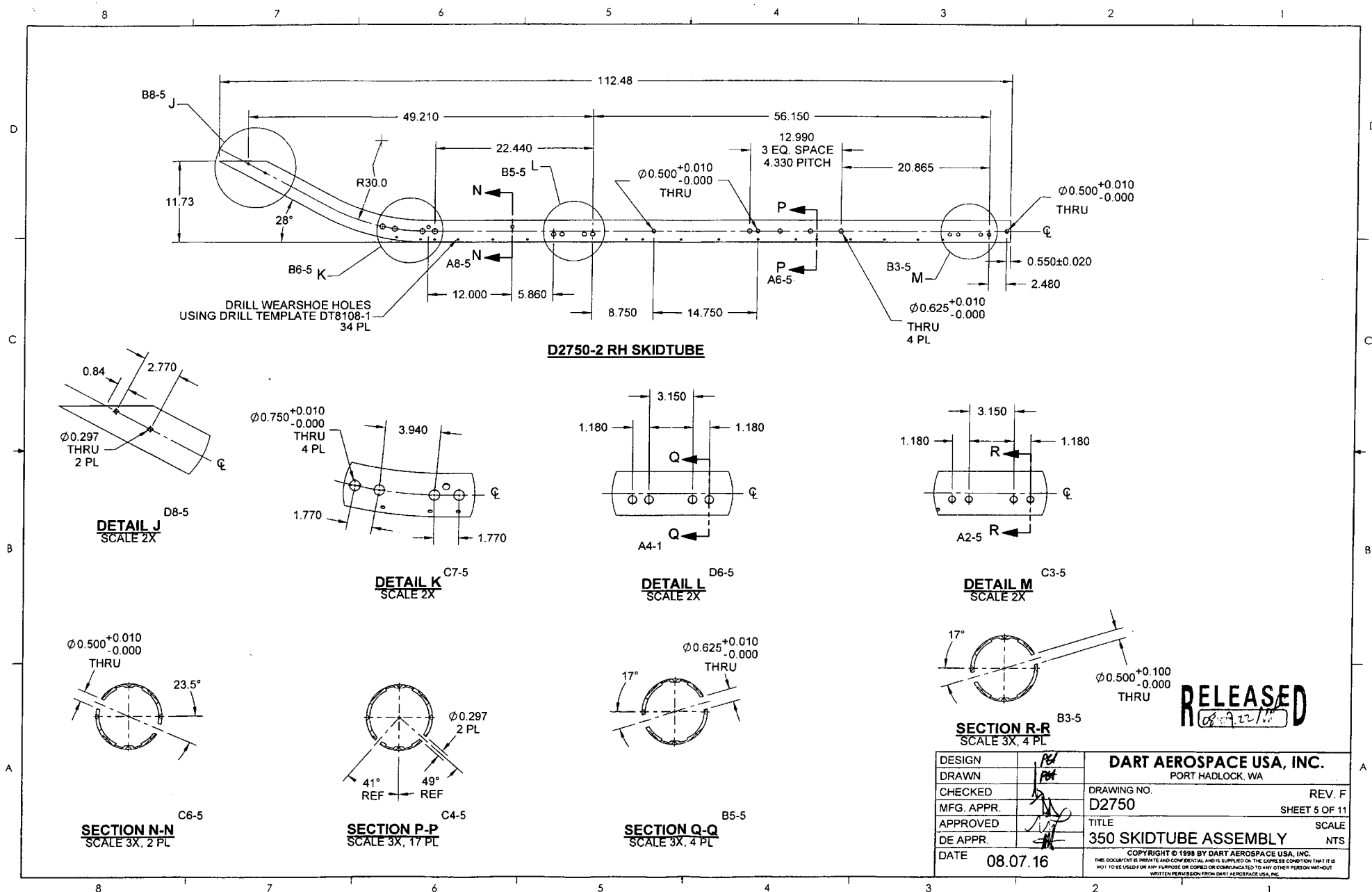
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

74989



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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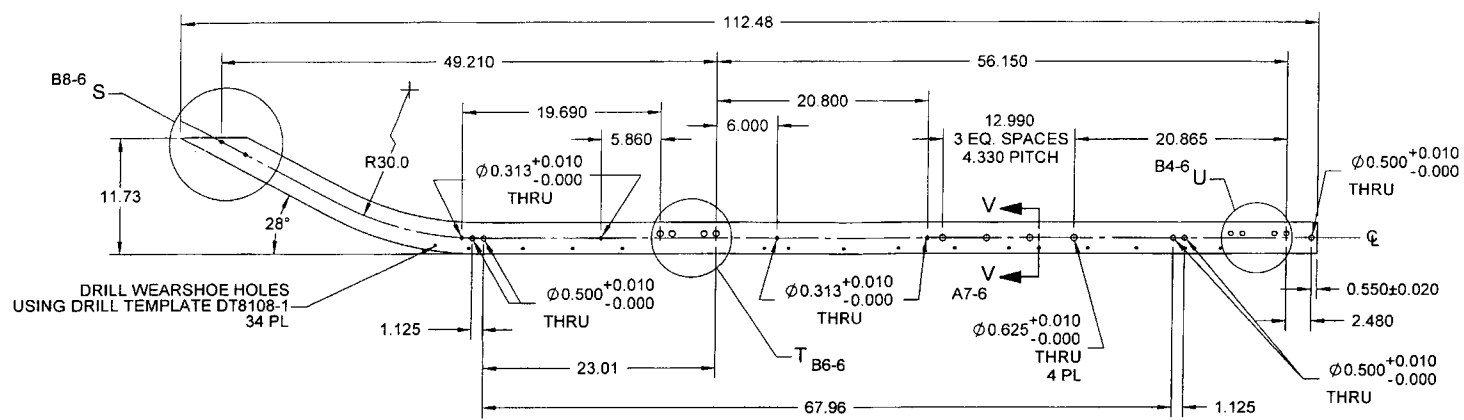
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

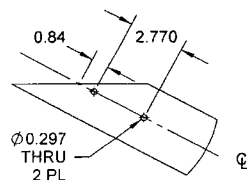
NOTE: Date & initial all entries

749 89

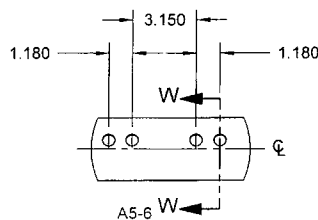
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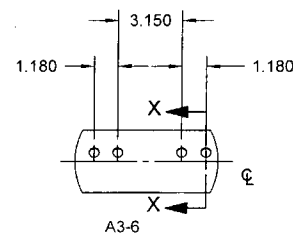
D2750-3 LH SKIDTUBE



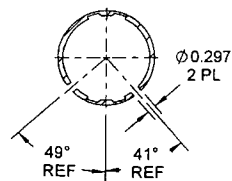
DETAIL S
SCALE 2X



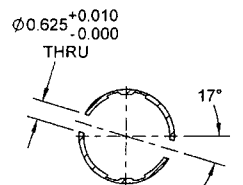
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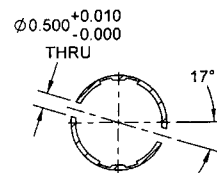
DETAIL U
SCALE 2X



SECTION V-V
SCALE 3X, 17 PL



SECTION W-W
SCALE 3X, 4 PL



SECTION X-X
SCALE 3X, 4 PL

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DRAWN		PORT HADLOCK, WA	
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MFG. APPR.		TITLE	SHEET 6 OF 11
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8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

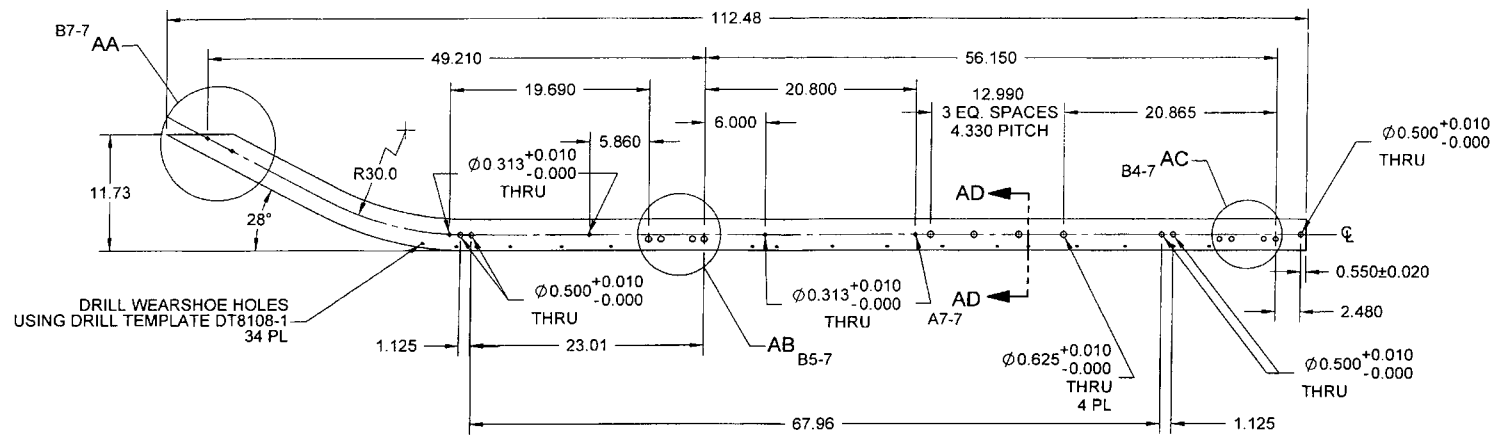
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

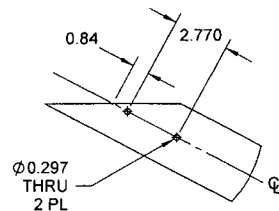
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

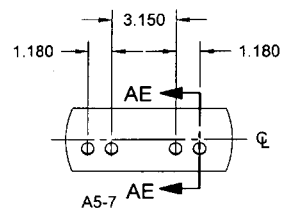
74989



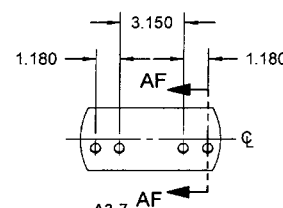
D2750-4 RH SKIDTUBE



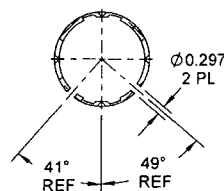
DETAIL AA
SCALE 2X



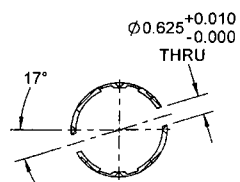
DETAIL AB
SCALE 2X



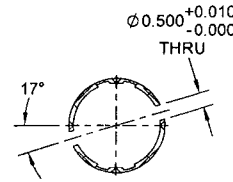
DETAIL AC
SCALE 2X



SECTION AD-AD
SCALE 3X, 17 PL







SECTION AE-AE
SCALE 3X, 4 PL



SECTION AF-AF
SCALE 3X, 4 PL

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MFG. APPR.		D2750	SHEET 7 OF 11
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

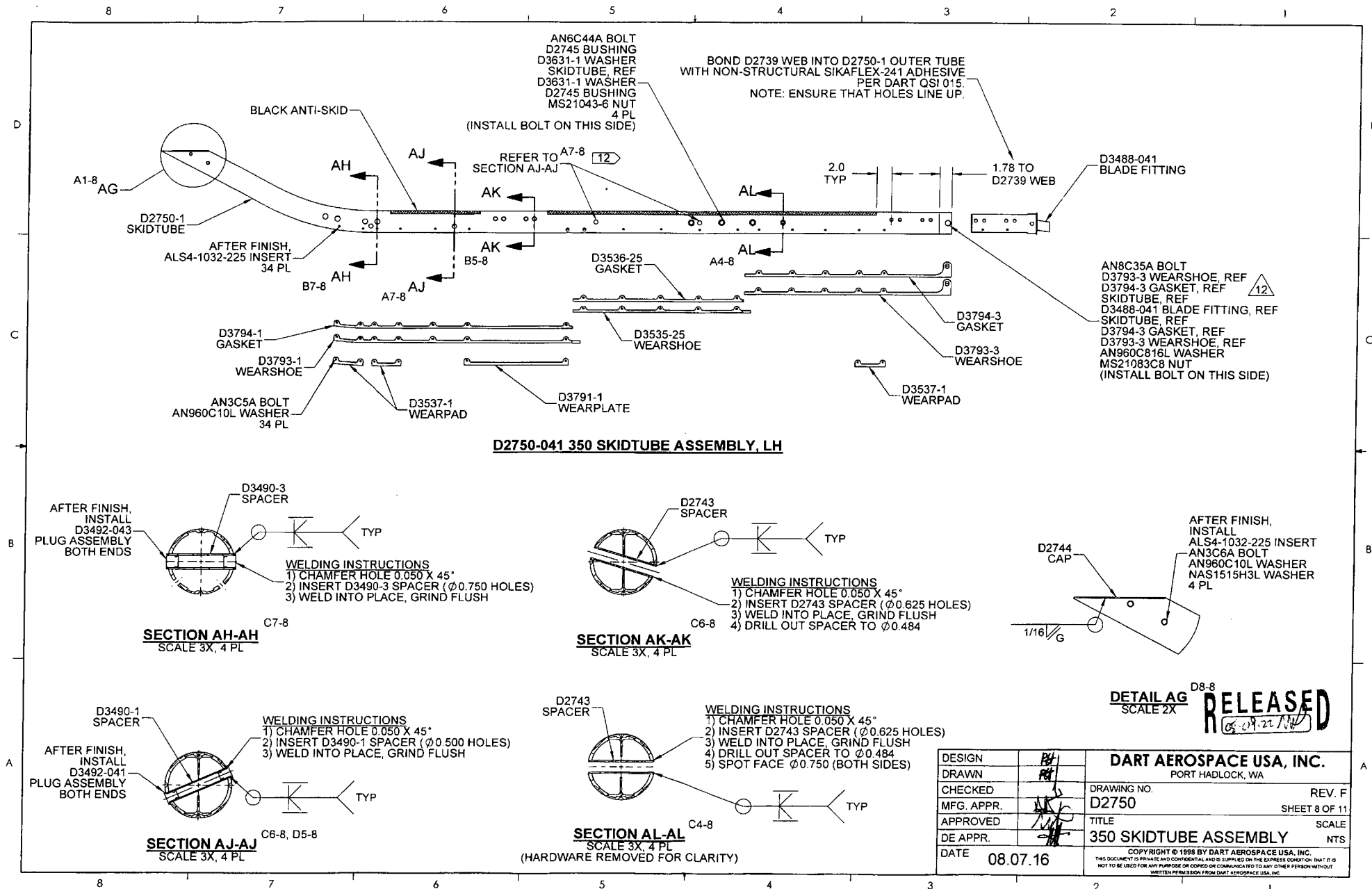
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

74989



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

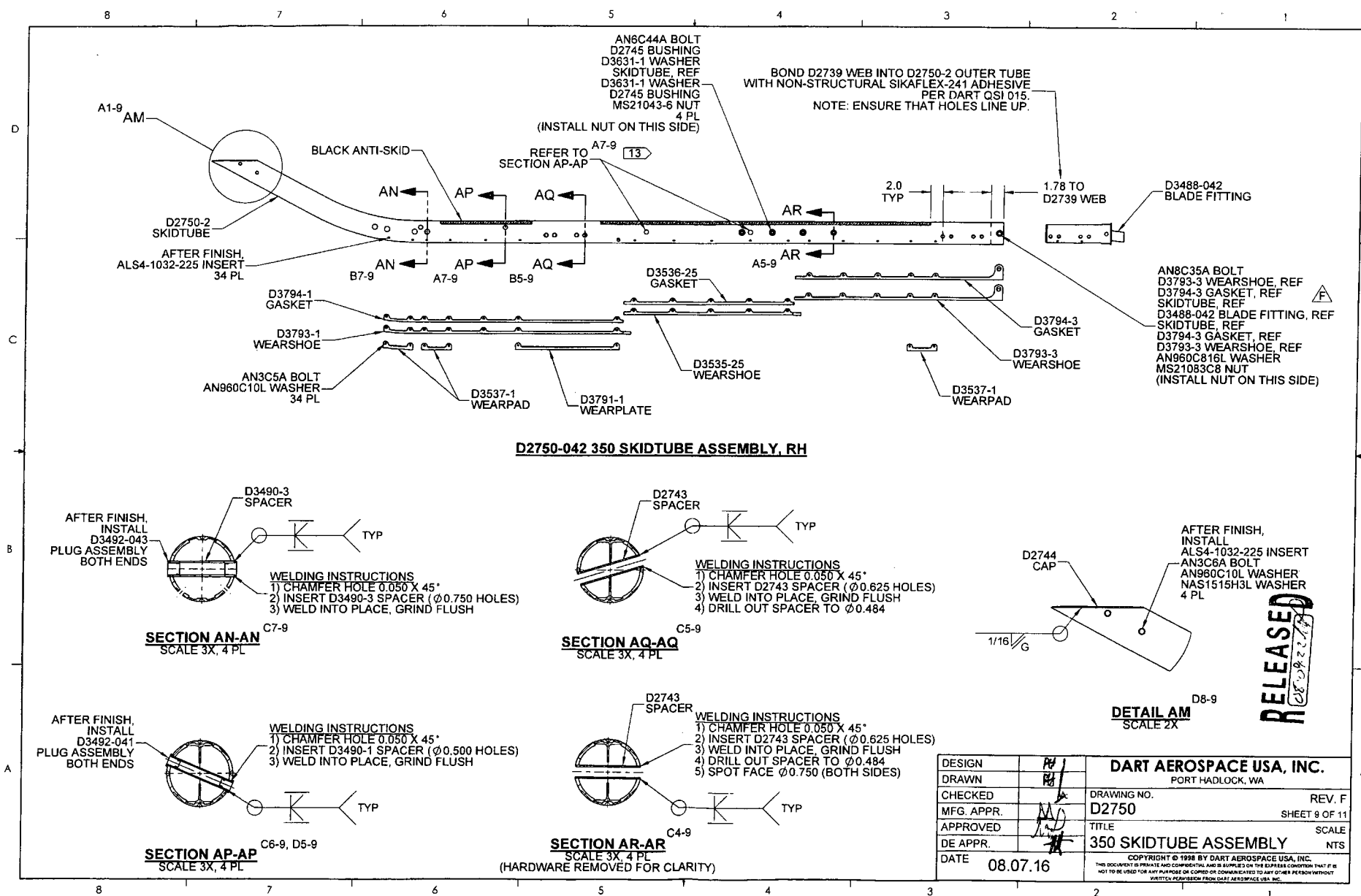
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74989



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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

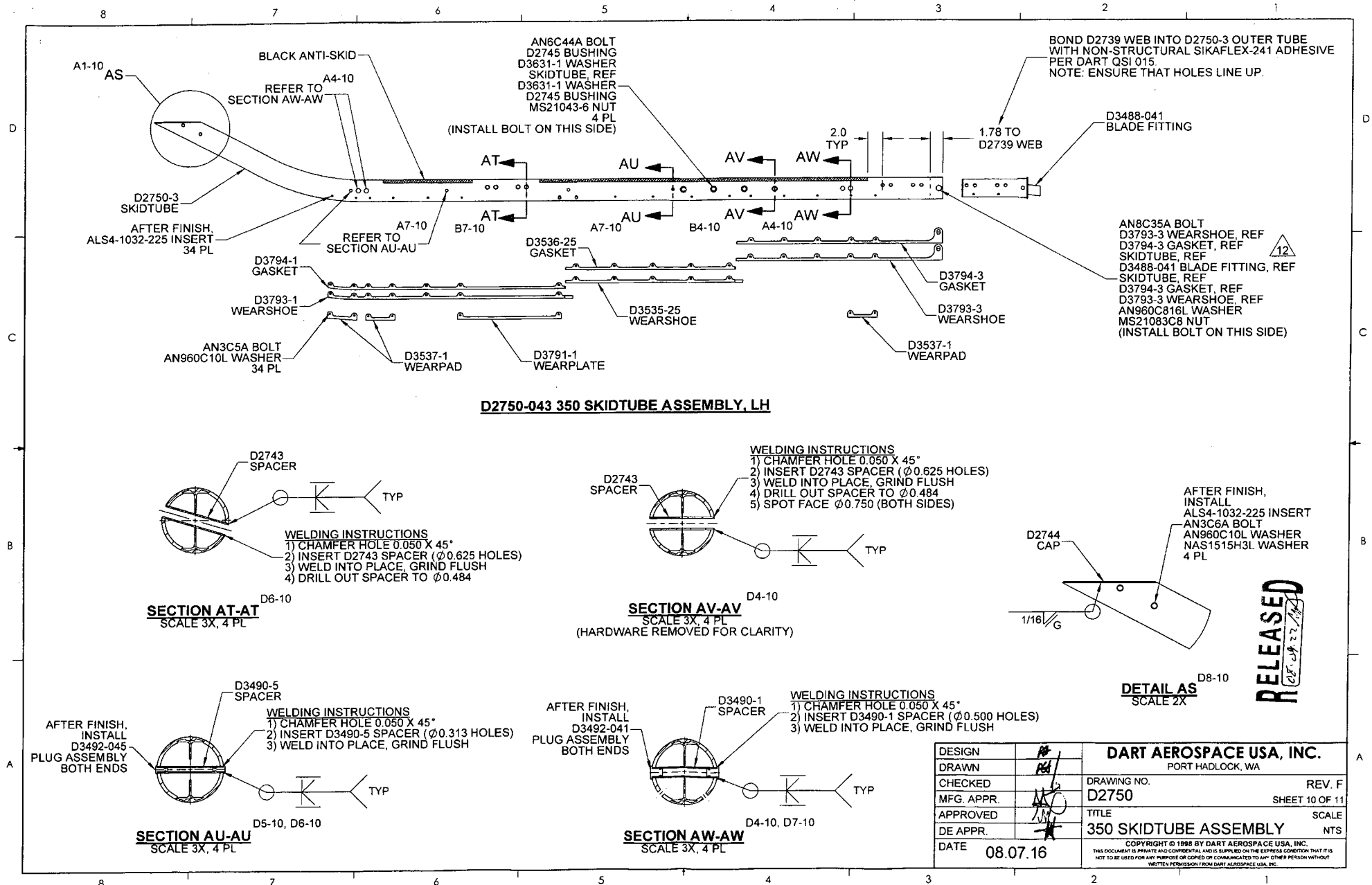
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


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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

74989



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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

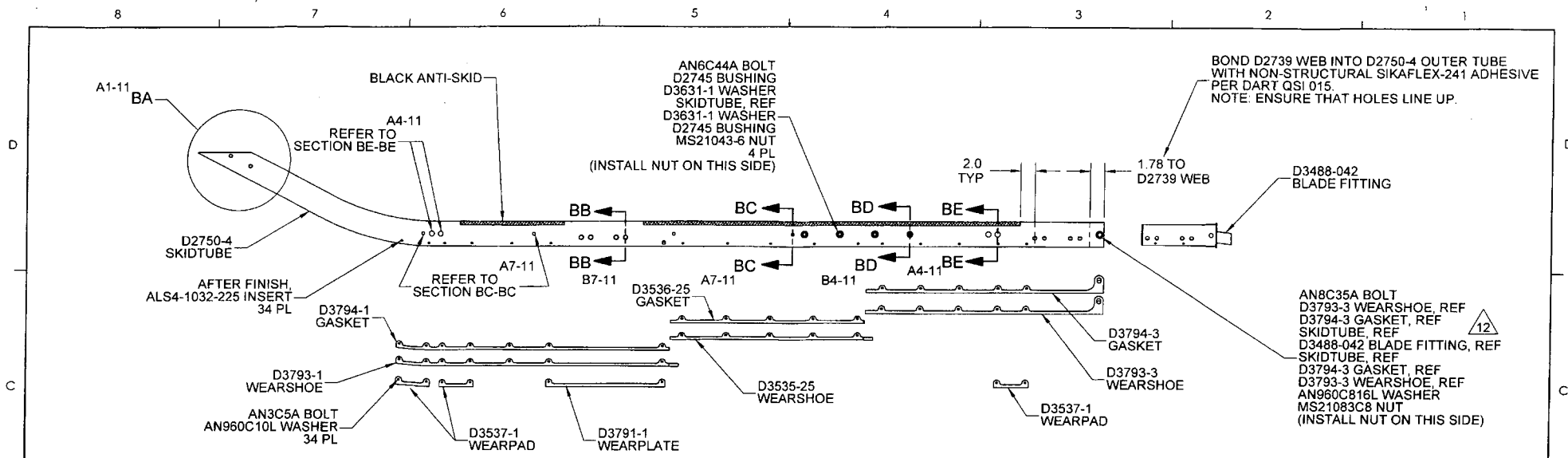
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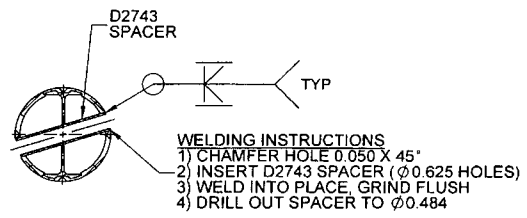
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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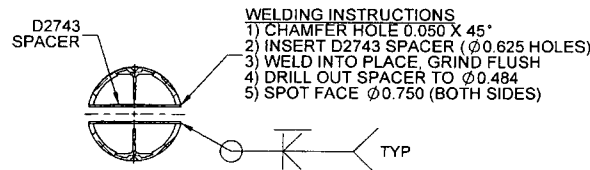
749 89



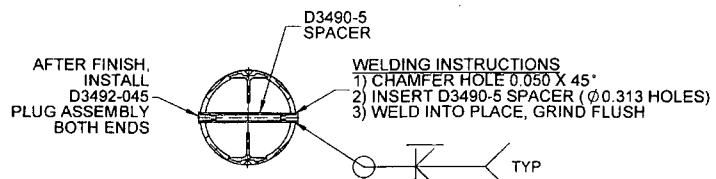
D2750-044 350 SKIDTUBE ASSEMBLY, RH



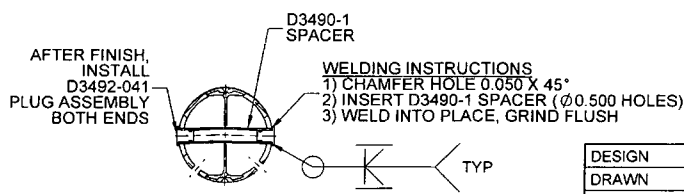
SECTION BB-BB
SCALE 3X, 4 PL



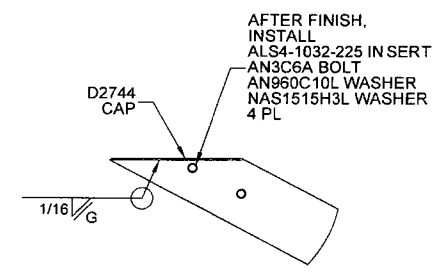
SECTION BD-BD
SCALE 3X, 4 PL
(HARDWARE REMOVED FOR CLARITY)



SECTION BC-BC
SCALE 3X, 4 PL



SECTION BE-BE
SCALE 3X, 4 PL



DETAIL BA
SCALE 2X

DESIGN	HA	DART AEROSPACE USA, INC.	
DRAWN	HA	PORT HADLOCK, WA	
CHECKED	HA	DRAWING NO.	REV. F
MFG. APPR.	HA	D2750	SHEET 11 OF 11
APPROVED	HA	TITLE	SCALE
DE APPR.	HA	350 SKIDTUBE ASSEMBLY	NTS
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 276

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barley Elliot
Job number: 75349
Part number: 350-630-011
Description: Skid tube
Welding Process: Tig[☒] Mig[]
Base material: Alum
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier David David Date of Test Coupon 11.11.22
Welder Barley Elliot Date of Test Coupon 11.11.22

The above named individual is qualified in accordance with AWS D17.1.2001 to weld